

SEQUENCE LISTING

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Jønson, Lars
Rehfeld, Jens F.
Johnsen, Anders H.

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a recombinant polypeptide from a host cell

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Gly Gln Ile Asp Thr Met Leu Pro Pro Glu Lys Gln Thr Lys Ala Ser
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Tyr Gln Lys Leu Ile Glu Ser Gly Ile Gly Leu Glu Phe Ser Val Asn
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11/67

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50 Asp Lys Tyr Ser Ile Glu Gln Lys Asn Asn Thr Met Ser Arg Ile Thr
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55 Asp Thr Asn Gly Ile Thr Tyr Val Arg Gly Lys Arg Leu Leu Asn Asp
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Ile Ile Pro Phe Glu Leu Phe Pro Tyr Leu Pro Leu Phe Ala Glu Ser
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12/67

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Ser Gln Ala Leu Leu Gly Val Pro Tyr Thr His Lys Asp Gly Ser Ala
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Leu Gln Val Met Ser Asn Met Leu Thr Phe Lys His Leu His Arg Glu

13/67

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15/67

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16/67

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625 630 635 640

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17/67

785

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20/67

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Arg Pro Tyr Leu Glu Ile Ser Tyr Lys Ala Leu Ser Ser Lys Thr Asn
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Lys Ala Ile Glu Leu Val Asp Glu Ile Val Asn His Thr Asp Leu Asp
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Asp Met Asp Arg Ile Met Gln Ile Ile Arg Glu Lys Arg Ala Arg Leu
660 665 670

Glu Gly Ala Ile Phe Asp Ser Gly His Arg Ile Ala Met Lys Lys Val
20 675 680 685

Leu Ser Tyr Ser Thr Asn Arg Gly Ala Tyr Asp Glu Lys Ile Ser Gly
25 690 695 700

Leu Asp Tyr Tyr Asp Phe Leu Val Asn Ile Glu Lys Glu Asp Lys Lys
30 705 710 715 720

Ser Thr Ile Ser Asp Ser Leu Lys Lys Val Arg Asp Leu Ile Phe Asn
35 725 730 735

Lys Gly Asn Met Leu Ile Ser Tyr Ser Gly Lys Glu Glu Glu Tyr Glu
740 745 750

Asn Phe Lys Glu Lys Val Lys Tyr Leu Ile Ser Lys Thr Asn Asn Asn
40 755 760 765

Asp Phe Glu Lys Glu Glu Tyr Asn Phe Glu Leu Gly Lys Lys Asn Glu
45 770 775 780

Gly Leu Leu Thr Gln Gly Asn Val Gln Tyr Val Ala Lys Gly Gly Asn
785 790 795 800

Tyr Lys Thr His Gly Tyr Lys Tyr Ser Gly Ala Leu Ser Leu Leu Glu
50 805 810 815

Ser Ile Leu Gly Phe Asp Tyr Leu Trp Asn Ala Val Arg Val Lys Gly
55 820 825 830

Gly Ala Tyr Gly Val Phe Ser Asn Phe Arg Arg Asp Gly Gly Ala Tyr

21/67

835

840

845

5 Ile Val Ser Tyr Arg Asp Pro Asn Ile Lys Ser Thr Leu Glu Ala Tyr
850 855 860

10 Asp Asn Ile Pro Lys Tyr Leu Asn Asp Phe Glu Ala Asp Glu Arg Glu
865 870 875 880

Met Thr Lys Tyr Ile Ile Gly Thr Ile Arg Lys Tyr Asp Gln Pro Ile
885 890 895

15 Ser Asn Gly Ile Lys Gly Asp Ile Ala Val Ser Tyr Tyr Leu Ser Asn
900 905 910

20 Phe Thr Tyr Glu Asp Leu Gln Lys Glu Arg Glu Glu Ile Ile Asn Ala
915 920 925

25 Asp Val Glu Lys Ile Lys Ser Phe Ala Pro Met Ile Lys Asp Leu Met
930 935 940

30 Lys Glu Asp Tyr Ile Cys Val Leu Gly Asn Glu Glu Lys Ile Lys Glu
945 950 955 960

Asn Lys Asp Leu Phe Asn Asn Ile Lys Ser Val Ile Lys
965 970

35
<210> 7
<211> 971
<212> PRT
<213> *Borrelia burgdorferi*
40
<400> 7

45 Met Lys Lys Lys Ile Phe Lys Leu Ile Ser Lys Thr Tyr Leu Glu
1 5 10 15

Glu His Asp Ala Glu Gly Tyr Tyr Phe Lys His Glu Ser Gly Leu Glu
20 25 30

50 Val Phe His Leu Lys Ser Asp Ser Phe Lys Glu Asn Ala Phe Cys Ile
35 40 45

55 Ala Phe Lys Thr Ile Pro Ser Asn Asn Thr Gly Val Ala His Val Leu
50 55 60

65 Glu His Thr Ile Phe Cys Gly Ser Ser Lys Tyr Lys Ile Lys Asp Pro
70 75 80

Phe Leu Tyr Leu Leu Lys Gly Ser Leu Asn Thr Phe Leu Asn Ala Met
85 90 95

5

Thr Phe Pro Asp Lys Thr Ile Tyr Pro Ala Ala Ser Thr Ile Glu Lys
100 105 110

10 Asp Tyr Phe Asn Leu Phe Asn Ile Tyr Ala Asp Ser Ile Phe Asn Pro
115 120 125

15 Leu Leu Lys Lys Glu Ser Phe Met Gln Glu Gly Tyr Asn Ile Asn Pro
130 135 140

Lys Asp Phe Lys Val Ser Gly Ile Val Phe Asn Glu Met Lys Gly Ser
20 145 150 155 160

Tyr Ser Asn Lys Asn Ser Leu Ile Asn Glu Ile Val Ser Ser Ser Leu
165 170 175

25

30 Phe Glu Glu Gly Ala Tyr Lys Tyr Asp Ser Gly Gly Ile Pro Thr Asn
180 185 190

Ile Ile Asp Leu Thr Tyr Glu Ser Phe Leu Asp Phe Tyr Lys Lys Tyr
195 200 205

35 Tyr Thr Leu Glu Asn Cys Lys Ile Phe Leu Cys Gly Asn Thr Gln Thr
210 215 220

Glu Lys Asn Leu Asn Phe Ile Glu Lys Tyr Ile Ile Arg Pro Tyr Lys
40 225 230 235 240

Lys Glu Lys Ser Asn Val Asn Ile Asn Ile Glu Asn Val Lys Arg Trp
245 250 255

45 Glu Lys Gly Lys Lys Leu Thr Tyr Lys Ile Pro Lys Glu Asn Asp Asn
260 265 270

50 Ser Leu Gly Val Tyr Thr Ile Asn Trp Leu Cys Thr Glu Ile Asn Asn
275 280 285

Ile Glu Asp Ser Ile Gly Leu Glu Ile Leu Ser Glu Ile Leu Leu Asp
290 295 300

55

Asp Ser Cys Ser Phe Thr Ile Asn Ile Leu Lys Ser Gly Ile Gly Glu
305 310 315 320

Asp Ile Ala His Ile Ser Gly Ile Asn Thr Asp Leu Lys Glu Ser Ile
325 330 335

5 Phe Ser Phe Gly Leu Gln Asn Val Val Glu Asn Lys Glu Lys Glu Phe
340 345 350

10 Lys Asn Leu Val Phe Ser Glu Leu Lys Asn Leu Val Lys Asn Lys Ile
355 360 365

15 Pro Lys Glu Leu Ile Lys Gly Ile Leu Phe Gly Tyr Glu Phe Ala Leu
370 375 380

20 Lys Glu Glu Lys Gly Gln Asn Phe Pro Ile Ala Leu Met Ile Lys Ser
385 390 395 400

Phe Lys Gly Trp Leu Asn Gly Leu His Pro Ile Lys Thr Leu Gln Thr
405 410 415

25 Ser Tyr Tyr Ile Asn Glu Ile Thr Asn Lys Leu Glu Lys Gly Ile Tyr
420 425 430

30 Tyr Phe Glu Asn Leu Ile Glu Lys Tyr Leu Ile Phe Asn Asn His Tyr
435 440 445

35 Thr Leu Ile Ser Phe Ile Pro Ser His Asp Thr Glu Lys Glu Met Glu
450 455 460

40 Glu Glu Ile Glu Lys Lys Leu Met Ala Arg Glu Ile Glu Ile Lys Gln
465 470 475 480

45 Asn Pro Glu Glu Phe Leu Gln Phe Lys Lys Asp Tyr Asn Gln Phe Lys
485 490 495

Lys Tyr Gln Asn Lys Lys Asp Ser Lys Ala Asp Ile Ala Lys Leu Pro
500 505 510

50 Leu Leu Lys Ile Glu Asp Leu Pro Lys Gln Ile Glu Lys Ser Leu Asp
515 520 525

55 Leu Asn Glu Ile Lys Glu Leu Asn Leu His Ser Phe Lys Phe Lys Ser
530 535 540

Asn Asn Ile Phe Asn Val Asn Leu Phe Phe Lys Leu Asp Phe Leu Glu
545 550 555 560

Lys Glu Asp Tyr Ile Tyr Leu Ser Leu Phe Lys Arg Ala Leu Gln Asp
565 570 575

5 Leu Ser Thr Lys Asn Tyr Ser Tyr Ile Asn Ile Asn Asn Lys Ile Gln
580 585 590

10 Asn Thr Leu Gly Gln Ile Asn Ile Ser Glu Ser Tyr Asp Glu Asp Ile
595 600 605

15 Asp Gly Asn Ile Leu Asn Ser Phe Asn Ile Ser Phe Lys Ser Phe Asn
610 615 620

Asn Lys Val Lys Glu Ser Phe Glu Leu Ile Lys Glu Ile Leu Ile Asn
625 630 635 640

20 Ile Asn Phe His Asp Tyr Glu Arg Leu Lys Glu Ile Thr Leu Ser Leu
645 650 655

25 Lys Asn Asp Phe Lys Ser Leu Leu Ile Pro Lys Gly His Leu Leu Ala
660 665 670

30 Met Leu Arg Ser Lys Ser Lys Leu Lys Leu Asn Glu Tyr Leu Lys Glu
675 680 685

35 Leu Gln Asn Gly Ile Thr Gly Arg Glu Phe Trp Gln Lys Ala Lys Thr
690 695 700

40 Asp Thr Glu Ser Leu Lys Glu Ile Ala Asn Lys Leu Asp Asn Leu Lys
705 710 715 720

45 Asn Lys Ile Ile Leu Lys Asn Asn Leu Ser Ala Leu Ile Met Gly Asn
725 730 735
Thr Asp Asp Ile Leu Lys Asn Leu Glu Asn Glu Phe Phe Asn Leu Lys
740 745 750

50 Glu Ser Leu Glu Glu Ser Asn His Tyr Asn Gly Leu Leu Asn Leu Asp
755 760 765

55 Ala Asn Ser Lys Ala Leu Arg Glu Ile Ile Ile Gln Ser Lys Val
770 775 780

785 790 795 800

Tyr Pro Lys Ala Asn Phe Leu Glu His Val Leu Arg Ser Gly Ile Phe

25/67

805

810

815

5 Trp Glu Lys Ile Arg Val Met Gly Gly Ala Tyr Gly Ala Ser Ala Ser
820 825 830

10 Ile Ala Asn Gly Ile Phe Ser Phe Ala Ser Tyr Arg Asp Pro Asn Phe
835 840 845

15 Thr Lys Thr Tyr Gln Ala Phe Glu Lys Ser Leu Glu Glu Leu Ala Asn
850 855 860

20 Asn Lys Met Thr Asp Asp Glu Ile Tyr Thr Tyr Leu Ile Gly Leu Ile
865 870 875 880

25 Gly Thr Asn Ile Tyr Val Lys Thr Lys Ala Thr Glu Ala Leu Gln Ser
885 890 895

30 Tyr Arg Arg Lys Met Leu Asn Ile Ser Asp Ser Leu Arg Gln Asp Ile
900 905 910

35 Arg Asn Ala Tyr Phe Thr Ile Thr Pro Gln Asp Ile Lys Glu Ile Ser
915 920 925

40 Thr Lys Ile Leu Thr Gln Ile Arg Gln His Asn Ser Ile Ala Ser Leu
930 935 940

45 Val Asn Asn Gln Ile Tyr Glu Glu Glu Lys Asn Asn Leu Glu Lys Leu
945 950 955 960

50 Ile Gly Lys Glu Tyr Ser Leu Lys Lys Ile Tyr
965 970

<210> 8

<211> 995

<212> PRT

45 <213> *Caenorhabditis elegans*

<400> 8

55 Met Ser Ala Ser Lys Leu Trp Ser Cys Thr Glu Thr Val Leu Asn Gly
1 5 10 15

Gly Ile Lys Leu Phe Leu Tyr Ser Ser Lys Asn Thr Lys Leu Arg Val
20 25 30

55 Ala Ile Gly Glu Val Pro Gly Pro Met Val His Gly Ala Val Ser Phe
35 40 45

Val Thr Glu Ala Asp Ser Asp Asp Gly Leu Pro His Thr Leu Glu His
50 55 60

5 Leu Val Phe Met Gly Ser Lys Lys Tyr Pro Phe Lys Gly Val Leu Asp
65 70 75 80

10 Val Ile Ala Asn Arg Cys Leu Ala Asp Gly Thr Asn Ala Trp Thr Asp
85 90 95

15 Thr Asp His Thr Ala Tyr Thr Leu Ser Thr Val Gly Ser Asp Gly Phe
100 105 110

20 Leu Lys Val Leu Pro Val Tyr Ile Asn His Leu Leu Thr Pro Met Leu
115 120 125

25 Thr Ala Ser Gln Phe Ala Thr Glu Val His His Ile Thr Gly Glu Gly
130 135 140

30 Asn Asp Ala Gly Val Val Tyr Ser Glu Met Gln Asp His Glu Ser Glu
145 150 155 160

35 Met Glu Ser Ile Met Asp Arg Lys Thr Lys Glu Val Ile Tyr Pro Pro
165 170 175

40 Phe Asn Pro Tyr Ala Val Asp Thr Gly Gly Arg Leu Lys Asn Leu Arg
180 185 190

45 Glu Ser Cys Thr Leu Glu Lys Val Arg Asp Tyr His Lys Lys Phe Tyr
195 200 205

50 His Leu Ser Asn Met Val Val Thr Val Cys Gly Met Val Asp His Asp
210 215 220

55 Gln Val Leu Glu Ile Met Asn Asn Val Glu Asn Glu His Met Ser Thr
225 230 235 240

60 Val Pro Asp His Phe Pro Lys Pro Phe Ser Phe Ala Leu Ser Asp Ile
245 250 255

65 Lys Glu Ser Thr Val His Arg Val Glu Cys Pro Thr Asp Asp Ala Ser
260 265 270

70 Arg Gly Ala Val Glu Val Ala Trp Phe Ala His Ser Pro Ser Asp Leu
275 280 285

1 Glu Thr His Ser Ser Leu His Val Leu Phe Asp Tyr Leu Ser Asn Thr
 290 295 300
 5 Ser Val Ala Pro Leu Gln Lys Asp Phe Ile Leu Leu Glu Asp Pro Leu
 305 310 315 320
 10 Ala Ser Ser Val Ser Phe His Ile Ala Glu Gly Val Arg Cys Asp Leu
 325 330 335
 15 Arg Leu Asn Phe Ala Gly Val Pro Val Glu Lys Leu Asp Glu Cys Ala
 340 345 350
 20 Pro Lys Phe Phe Asp Lys Thr Val Arg Glu His Leu Glu Glu Ala Asn
 355 360 365
 25 Phe Asp Met Glu Arg Met Gly Tyr Leu Ile Asp Gln Thr Ile Leu Asn
 370 375 380
 30 Glu Leu Val Lys Leu Glu Thr Asn Ala Pro Lys Asp Ile Met Ser His
 385 390 395 400
 35 Ile Ile Gly His Gln Leu Phe Asp Asn Glu Asp Glu Glu Leu Phe Lys
 405 410 415
 40 Lys Arg Thr Asn Glu Ile Asp Phe Leu Lys Lys Leu Lys Ser Glu Pro
 420 425 430
 45 Ala Ser Tyr Trp Val Gln Leu Val Asn Lys Tyr Phe Thr Ala Pro Ser
 435 440 445
 50 Ala Thr Val Ile Gly Val Pro Asn Glu Glu Leu Val Asp Lys Ile Ala
 450 455 460
 45 Glu Glu Glu Glu Lys Arg Ile Ala Ala Gln Cys Glu Lys Leu Gly Lys
 465 470 475 480
 50 Lys Gly Leu Glu Glu Ala Gly Lys Ser Leu Glu Ala Ala Ile Leu Glu
 485 490 495
 55 Asn Thr Ala Asn His Pro Ser Ala Glu Leu Leu Asp Gln Leu Ile Val
 500 505 510
 55 Lys Asp Leu Glu Ala Phe Asp Arg Phe Pro Val Gln Ser Leu Thr Ser
 515 520 525

Asn Ser Pro Ser Leu Thr Pro Gln Gln Ser Thr Phe Leu Ala Gln Phe
530 535 540

5 Pro Phe His Ala Asn Leu His Asn Cys Pro Thr Lys Phe Val Glu Ile
545 550 555 560

10 Phe Phe Leu Leu Asp Ser Ser Asn Leu Ser Ile Glu Asp Arg Ser Tyr
565 570. 575

15 Leu Phe Leu Tyr Thr Asp Leu Leu Phe Glu Ser Pro Ala Met Ile Asp
580 585 590

20 Gly Val Leu Thr Ser Ala Asp Asp Val Ala Lys His Phe Thr Lys Asp
595 600 605

Leu Ile Asp His Ser Ile Gln Val Gly Val Ser Gly Leu Tyr Asp Arg
610 615 620

25 Phe Val Asn Leu Arg Ile Lys Val Gly Ala Asp Lys Tyr Pro Leu Leu
625 630 635 640

30 Ala Lys Trp Ala Gln Ile Phe Thr Gln Gly Val Val Phe Asp Pro Ser
645 650 655

35 Arg Ile His Gln Cys Ala Gln Lys Leu Ala Gly Glu Ala Arg Asp Arg
660 665 670

40 Lys Arg Asp Gly Cys Thr Val Ala Ser Thr Ala Val Ala Ser Met Val
675 680 685

Tyr Gly Lys Asn Thr Asn Cys Ile Leu Phe Asp Glu Leu Val Leu Glu
690 695 700

45 Lys Leu His Glu Lys Ile Ser Lys Asp Val Met Lys Asn Pro Glu Ala
705 710 715 720

50 Val Leu Glu Lys Leu Glu Gln Val Arg Ser Ala Leu Phe Ser Asn Gly
725 730 735

Val Asn Ala His Phe Val Ala Asp Val Asp Ser Ile Asp Pro Lys Met
740 745 750

55 Leu Ser Ser Asp Leu Trp Thr Trp Val Gln Ala Asp Pro Arg Phe Gly
755 760 765

Pro Gly His Gln Phe Ser Ala Glu Ala Gly Glu Asn Val Ser Leu Glu

29/67

770

775

780

5 Leu Gly Lys Glu Leu Leu Ile Gly Val Gly Gly Ser Glu Ser Ser Phe
785 790 795 800

10 Ile Tyr Gln Thr Ser Phe Leu Asp Ala Asn Trp Asn Ser Glu Glu Leu
805 810 815

15 Ile Pro Ala Met Ile Phe Gly Gln Tyr Leu Ser Gln Cys Glu Gly Pro
820 825 830

Leu Trp Arg Ala Ile Arg Gly Asp Gly Leu Ala Tyr Gly Ala Asn Val
835 840 845

20 Phe Val Lys Pro Asp Arg Lys Gln Ile Thr Leu Ser Leu Tyr Arg Cys
850 855 860

25 Ala Gln Pro Ala Val Ala Tyr Glu Arg Thr Arg Asp Ile Ile Arg Lys
865 870 875 880

30 Ile Val Glu Ser Gly Glu Ile Ser Lys Ala Glu Phe Glu Gly Ala Lys
885 890 895

Arg Ser Thr Val Phe Glu Met Met Lys Arg Glu Gly Thr Val Ser Gly
900 905 910

35 Ala Ala Lys Ile Ser Ile Leu Asn Asn Phe Arg Gln Thr Pro His Pro
915 920 925
Phe Asn Ile Asp Leu Cys Arg Arg Ile Trp Asn Leu Thr Ser Glu Glu
930 935 940

40 Met Val Lys Ile Gly Gly Pro Pro Leu Ala Arg Leu Phe Asp Glu Lys
945 950 955 960

45 Cys Phe Val Arg Ser Ile Ala Val His Pro Ser Lys Leu Asn Glu Met
965 970 975

50 Lys Lys Ala Phe Pro Gly Ser Ser Lys Ile Lys Ile Ser Asp Leu Gln
980 985 990

55 Phe Ala Cys
995

<210> 9
<211> 962

30/67

<212> PRT
<213> Escherichia coli

<400> 9

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Met Pro Arg Ser Thr Trp Phe Lys Ala Leu Leu Leu Val Ala Leu
1 5 10 15

10 Trp Ala Pro Leu Ser Gln Ala Glu Thr Gly Trp Gln Pro Ile Gln Glu
20 25 30

15 Thr Ile Arg Lys Ser Asp Lys Asp Asn Arg Gln Tyr Gln Ala Ile Arg
35 40 45

20 Leu Asp Asn Gly Met Val Val Leu Leu Val Ser Asp Pro Gln Ala Val
50 55 60

25 Lys Ser Leu Ser Ala Leu Val Val Pro Val Gly Ser Leu Glu Asp Pro
65 70 75 80

30 Glu Ala Tyr Gln Gly Leu Ala His Tyr Leu Glu His Met Ser Leu Met
85 90 95

35 Gly Ser Lys Lys Tyr Pro Gln Ala Asp Ser Leu Ala Glu Tyr Leu Lys
100 105 110

40 Met His Gly Gly Ser His Asn Ala Ser Thr Ala Pro Tyr Arg Thr Ala
115 120 125

Phe Tyr Leu Glu Val Glu Asn Asp Ala Leu Pro Gly Ala Val Asp Arg
130 135 140

45 Leu Ala Asp Ala Ile Ala Glu Pro Leu Leu Asp Lys Lys Tyr Ala Glu
145 150 155 160

50 Arg Glu Arg Asn Ala Val Asn Ala Glu Leu Thr Met Ala Arg Thr Arg
165 170 175

Asp Gly Met Arg Met Ala Gln Val Ser Ala Glu Thr Ile Asn Pro Ala
180 185 190

55 His Pro Gly Ser Lys Phe Ser Gly Gly Asn Leu Glu Thr Leu Ser Asp
195 200 205

Lys Pro Gly Asn Pro Val Gln Gln Ala Leu Lys Asp Phe His Glu Lys
210 215 220

Tyr Tyr Ser Ala Asn Leu Met Lys Ala Val Ile Tyr Ser Asn Lys Pro
225 230 235 240

5 Leu Pro Glu Leu Ala Lys Met Ala Ala Asp Thr Phe Gly Arg Val Pro
245 250 255

10 Asn Lys Glu Ser Lys Lys Pro Glu Ile Thr Val Pro Val Val Thr Asp
260 265 270

15 Ala Gln Lys Gly Ile Ile His Tyr Val Pro Ala Leu Pro Arg Lys
275 280 285

20 Val Leu Arg Val Glu Phe Arg Ile Asp Asn Asn Ser Ala Lys Phe Arg
290 295 300

25 Ser Lys Thr Asp Glu Leu Ile Thr Tyr Leu Ile Gly Asn Arg Ser Pro
305 310 315 320

30 Gly Thr Leu Ser Asp Trp Leu Gln Lys Gln Gly Leu Val Glu Gly Ile
325 330 335

35 Ile Ser Ala Ser Leu Thr Asp Lys Gly Leu Ala Asn Arg Asp Gln Val
355 360 365

Val Ala Ala Ile Phe Ser Tyr Leu Asn Leu Leu Arg Glu Lys Gly Ile
370 375 380

40 Asp Lys Gln Tyr Phe Asp Glu Leu Ala Asn Val Leu Asp Ile Asp Phe
385 390 395 400

45 Arg Tyr Pro Ser Ile Thr Arg Asp Met Asp Tyr Val Glu Trp Leu Ala
405 410 415

50 Asp Thr Met Ile Arg Val Pro Val Glu His Thr Leu Asp Ala Val Asn
420 425 430

Ile Ala Asp Arg Tyr Asp Ala Lys Ala Val Lys Glu Arg Leu Ala Met
435 440 445

55 Met Thr Pro Gln Asn Ala Arg Ile Trp Tyr Ile Ser Pro Lys Glu Pro
450 455 460

32/67

His Asn Lys Thr Ala Tyr Phe Val Asp Ala Pro Tyr Gln Val Asp Lys
465 470 475 480

5 Ile Ser Ala Gln Thr Phe Ala Asp Trp Gln Lys Lys Ala Ala Asp Ile
485 490 495

10 Ala Leu Ser Leu Pro Glu Leu Asn Pro Tyr Ile Pro Asp Asp Phe Ser
500 505 510

15 Leu Ile Lys Ser Glu Lys Lys Tyr Asp His Pro Glu Leu Ile Val Asp
515 520 525

Glu Ser Asn Leu Arg Val Val Tyr Ala Pro Ser Arg Tyr Phe Ala Ser
530 535 540

20 Glu Pro Lys Ala Asp Val Ser Leu Ile Leu Arg Asn Pro Lys Ala Met
545 550 555 560

25 Asp Ser Ala Arg Asn Gln Val Met Phe Ala Leu Asn Asp Tyr Leu Ala
565 570 575

30 Gly Leu Ala Leu Asp Gln Leu Ser Asn Gln Ala Ser Val Gly Gly Ile
580 585 590

35 Ser Phe Ser Thr Asn Ala Asn Asn Gly Leu Met Val Asn Ala Asn Gly
595 600 605
Tyr Thr Gln Arg Leu Pro Gln Leu Phe Gln Ala Leu Leu Glu Gly Tyr
610 615 620

40 Phe Ser Tyr Thr Ala Thr Glu Asp Gln Leu Glu Gln Ala Lys Ser Trp
625 630 635 640

45 Tyr Asn Gln Met Met Asp Ser Ala Glu Lys Gly Lys Ala Phe Glu Gln
645 650 655

50 Ala Ile Met Pro Ala Gln Met Leu Ser Gln Val Pro Tyr Phe Ser Arg
660 665 670

55 Asp Glu Arg Arg Lys Ile Leu Pro Ser Ile Thr Leu Lys Glu Val Leu
675 680 685

55 Ala Tyr Arg Asp Ala Leu Lys Ser Gly Ala Arg Pro Glu Phe Met Val
690 695 700

Ile Gly Asn Met Thr Glu Ala Gln Ala Thr Thr Leu Ala Arg Asp Val

705 710 715 720

5 Gln Lys Gln Leu Gly Ala Asp Gly Ser Glu Trp Cys Arg Asn Lys Asp
725 730 735

10 Val Val Val Asp Lys Lys Gln Ser Val Ile Phe Glu Lys Ala Gly Asn
740 745 750

Ser Thr Asp Ser Ala Leu Ala Ala Val Phe Val Pro Thr Gly Tyr Asp
755 760 765

15 Glu Tyr Thr Ser Ser Ala Tyr Ser Ser Leu Leu Gly Gln Ile Val Gln
770 775 780

20 Pro Trp Phe Tyr Asn Gln Leu Arg Thr Glu Glu Gln Leu Gly Tyr Ala
785 790 795 800

25 Val Phe Ala Phe Pro Met Ser Val Gly Arg Gln Trp Gly Met Gly Phe
805 810 815

30 Leu Leu Gln Ser Asn Asp Lys Gln Pro Ser Phe Leu Trp Glu Arg Tyr
820 825 830

35 Lys Ala Phe Phe Pro Thr Ala Glu Ala Lys Leu Arg Ala Met Lys Pro
835 840 845
Asp Glu Phe Ala Gln Ile Gln Gln Ala Val Ile Thr Gln Met Leu Gln
850 855 860

40 Ala Pro Gln Thr Leu Gly Glu Glu Ala Ser Lys Leu Ser Lys Asp Phe
865 870 875 880

Asp Arg Gly Asn Met Arg Phe Asp Ser Arg Asp Lys Ile Val Ala Gln
885 890 895

45 Ile Lys Leu Leu Thr Pro Gln Lys Leu Ala Asp Phe Phe His Gln Ala
900 905 910

50 Val Val Glu Pro Gln Gly Met Ala Ile Leu Ser Gln Ile Ser Gly Ser
915 920 925

55 Gln Asn Gly Lys Ala Glu Tyr Val His Pro Glu Gly Trp Lys Val Trp
930 935 940

Glu Asn Val Ser Ala Leu Gln Gln Thr Met Pro Leu Met Ser Glu Lys
945 950 955 960

Asn Glu

5

<210> 10

<211> 1161

<212> PRT

10 <213> Homo sapiens

<400> 10

Met Leu Arg Arg Val Ala Val Ala Ala Val Phe Ala Thr Gly Arg Lys
15 1 5 10 15Leu Arg Cys Glu Ala Gly Arg Asp Val Thr Ala Val Gly Arg Ile Glu
20 20 25 30

20

Ala Arg Gly Leu Cys Glu Glu Ser Ala Lys Pro Phe Pro Thr Leu Thr
35 35 40 45

25

Met Pro Gly Arg Asn Lys Ala Lys Ser Thr Cys Ser Cys Pro Asp Leu
50 50 55 6030 Gln Pro Asn Gly Gln Asp Leu Gly Glu Ser Gly Arg Val Ala Arg Leu
65 65 70 75 80
Gly Ala Asp Glu Ser Glu Glu Gly Arg Ser Leu Ser Asn Val Gly
85 85 90 95

35

Asp Pro Glu Ile Ile Lys Ser Pro Ser Asp Pro Lys Gln Tyr Arg Tyr
100 100 105 11040 Ile Lys Leu Gln Asn Gly Leu Gln Ala Leu Leu Ile Ser Asp Leu Ser
115 115 120 12545 Asn Val Glu Gly Lys Thr Gly Asn Ala Thr Asp Glu Glu Glu Glu
130 130 135 14050 Glu Glu Glu Glu Glu Gly Glu Glu Glu Glu Glu Glu Glu Asp
145 145 150 155 160Asp Asp Asp Asp Asp Asp Glu Asp Ser Gly Ala Glu Ile Gln Asp Asp
165 165 170 175

55

Asp Glu Glu Gly Phe Asp Asp Glu Glu Glu Phe Asp Asp Asp Glu His
180 180 185 190

35/67

Asp Asp Asp Asp Leu Asp Asn Glu Glu Asn Glu Leu Glu Glu Leu Glu
195 200 205

5 Glu Arg Val Glu Ala Arg Lys Lys Thr Thr Glu Lys Gln Ser Ala Ala
210 215 220

Ala Leu Cys Val Gly Val Gly Ser Phe Ala Asp Pro Asp Asp Leu Pro
10 225 230 235 240

Gly Leu Ala His Phe Leu Glu His Met Val Phe Met Gly Ser Leu Lys
245 250 255

15

Tyr Pro Asp Glu Asn Gly Phe Asp Ala Phe Leu Lys Lys His Gly Gly
260 265 270

20

Ser Asp Asn Ala Ser Thr Asp Cys Glu Arg Thr Val Phe Gln Phe Asp
275 280 285

25 Val Gln Arg Lys Tyr Phe Lys Glu Ala Leu Asp Arg Trp Ala Gln Phe
290 295 300

Phe Ile His Pro Leu Met Ile Arg Asp Ala Ile Asp Arg Glu Val Glu
30 305 310 315 320

Ala Val Asp Ser Glu Tyr Gln Leu Ala Arg Pro Ser Asp Ala Asn Arg
325 330 335

35 Lys Glu Met Leu Phe Gly Ser Leu Ala Arg Pro Gly His Pro Met Gly
340 345 350

40 Lys Phe Phe Trp Gly Asn Ala Glu Thr Leu Lys His Glu Pro Lys Lys
355 360 365

45

Asn Asn Ile Asp Thr His Ala Arg Leu Arg Glu Phe Trp Met Arg Tyr
370 375 380

Tyr Ser Ala His Tyr Met Thr Leu Val Val Gln Ser Lys Glu Thr Leu
385 390 395 400

50

Asp Thr Leu Glu Lys Trp Val Thr Glu Ile Phe Ser Gln Ile Pro Asn
405 410 415

55 Asn Gly Leu Pro Lys Pro Asn Phe Ser His Leu Thr Asp Pro Phe Asp
420 425 430

Thr Pro Ala Phe Asn Lys Leu Tyr Arg Val Val Pro Ile Arg Lys Ile

36/67

435

440

445

5 His Ala Leu Thr Ile Thr Trp Ala Leu Pro Pro Gln Gln Gln His Tyr
450 455 460

10 Arg Val Lys Pro Leu His Tyr Ile Ser Trp Leu Val Gly His Glu Gly
465 470 475 480

Lys Gly Ser Ile Leu Ser Tyr Leu Arg Lys Lys Cys Trp Ala Leu Ala
485 490 495

15 Leu Phe Gly Gly Asn Gly Glu Thr Gly Phe Glu Gln Asn Ser Thr Tyr
500 505 510

20 Ser Val Phe Ser Ile Ser Ile Thr Leu Thr Asp Glu Gly Tyr Glu His
515 520 525

25 Phe Tyr Glu Val Ala His Thr Val Phe Gln Tyr Leu Lys Met Leu Gln
530 535 540

30 Lys Leu Gly Pro Glu Lys Arg Val Phe Glu Glu Ile Gln Lys Ile Glu
545 550 555 560

Asp Asn Glu Phe His Tyr Gln Glu Gln Thr Asp Pro Val Glu Tyr Val
565 570 575

35 Glu Asn Met Cys Glu Asn Met Gln Leu Tyr Pro Arg Gln Asp Phe Leu
580 585 590

40 Thr Gly Asp Gln Leu Leu Phe Glu Tyr Lys Pro Glu Val Ile Ala Glu
595 600 605

Ala Leu Asn Gln Leu Val Pro Gln Lys Ala Asn Leu Val Leu Leu Ser
610 615 620

45 Gly Ala Asn Glu Gly Arg Cys Asp Leu Lys Glu Lys Trp Phe Gly Thr
625 630 635 640

50 Gln Tyr Ser Ile Glu Asp Ile Glu Asn Ser Trp Thr Glu Leu Trp Lys
645 650 655

55 Ser Asn Phe Asp Leu Asn Ser Asp Leu His Leu Pro Ala Glu Asn Lys
660 665 670

Tyr Ile Ala Thr Asp Phe Thr Leu Lys Ala Phe Asp Cys Pro Glu Thr
675 680 685

Glu Tyr Pro Ala Lys Ile Val Asn Thr Pro Gln Gly Cys Leu Trp Tyr
 690 695 700
 5

Lys Lys Asp Asn Lys Phe Lys Ile Pro Lys Ala Tyr Ile Arg Phe His
 705 710 715 720
 10

Leu Ile Ser Pro Leu Ile Gln Lys Ser Ala Ala Asn Val Val Leu Phe
 725 730 735

15 Asp Ile Phe Val Asn Ile Leu Thr His Asn Leu Ala Glu Pro Ala Tyr
 740 745 750

20 Glu Ala Asp Val Ala Gln Leu Glu Tyr Lys Leu Val Ala Gly Glu His
 755 760 765

25 Gly Leu Ile Ile Arg Val Lys Gly Phe Asn His Lys Leu Pro Leu Leu
 770 775 780

30 Phe Gln Leu Ile Ile Asp Tyr Leu Thr Glu Phe Ser Ser Thr Pro Ala
 785 790 795 800

Val Phe Thr Met Ile Thr Glu Gln Leu Lys Lys Thr Tyr Phe Asn Ile
 805 810 815

35 Leu Ile Lys Pro Glu Thr Leu Ala Lys Asp Val Arg Leu Leu Ile Leu
 820 825 830

40 Glu Tyr Ser Arg Trp Ser Met Ile Asp Lys Tyr Arg Ala Leu Met Asp
 835 840 845

45 Gly Leu Ser Leu Glu Ser Leu Leu Asn Phe Val Lys Asp Phe Lys Ser
 850 855 860

50 Gln Leu Phe Val Glu Gly Leu Val Gln Gly Asn Val Thr Ser Thr Glu
 865 870 875 880

Ser Met Asp Phe Leu Arg Tyr Val Val Asp Lys Leu Asn Phe Val Pro
 885 890 895

55 Leu Glu Arg Glu Met Pro Val Gln Phe Gln Val Val Glu Leu Pro Ser
 900 905 910

Gly His His Leu Cys Lys Val Arg Ala Leu Asn Lys Gly Asp Ala Asn
 915 920 925

5
Ser Glu Val Thr Val Tyr Tyr Gln Ser Gly Thr Arg Ser Leu Arg Glu
930 935 940
Tyr Thr Leu Met Glu Leu Leu Val Met His Met Glu Glu Pro Cys Phe
945 950 955 960
10 Asp Phe Leu Arg Thr Lys Gln Thr Leu Gly Tyr His Val Tyr Pro Thr
965 970 975
15 Cys Arg Asn Thr Ser Gly Ile Leu Gly Phe Ser Val Thr Val Gly Thr
980 985 990
20 Gln Ala Thr Lys Tyr Asn Ser Glu Thr Val Asp Lys Lys Ile Glu Glu
995 1000 1005
Phe Leu Ser Ser Phe Glu Glu Lys Ile Glu Asn Leu Thr Glu Asp
1010 1015 1020
25 Ala Phe Asn Thr Gln Val Thr Ala Leu Ile Lys Leu Lys Glu Cys
1025 1030 1035
Glu Asp Thr His Leu Gly Glu Glu Val Asp Arg Asn Trp Asn Glu
1040 1045 1050
30 Val Val Thr Gln Gln Tyr Leu Phe Asp Arg Leu Ala His Glu Ile
1055 1060 1065
35 Glu Ala Leu Lys Ser Phe Ser Lys Ser Asp Leu Val Ser Trp Phe
1070 1075 1080
40 Lys Ala His Arg Gly Pro Gly Ser Lys Met Leu Ser Val His Val
1085 1090 1095
45 Val Gly Tyr Gly Lys Tyr Glu Leu Glu Glu Asp Gly Ala Pro Val
1100 1105 1110
50 Cys Glu Asp Pro Asn Ser Arg Glu Gly Met Gln Leu Ile Tyr Leu
1115 1120 1125
Pro Pro Ser Pro Leu Leu Ala Glu Ser Thr Thr Pro Ile Thr Asp
1130 1135 1140
55 Ile Arg Ala Phe Thr Ala Thr Leu Ser Leu Phe Pro Tyr His Lys
1145 1150 1155

Ile Val Lys
1160

5 <210> 11
<211> 1019
<212> PRT
<213> Homo sapiens

10 <400> 11

Met Arg Tyr Arg Leu Ala Trp Leu Leu His Pro Ala Leu Pro Ser Thr
1 5 10 15

15

Phe Arg Ser Val Leu Gly Ala Arg Leu Pro Pro Pro Glu Arg Leu Cys
20 25 30

20 Gly Phe Gln Lys Lys Thr Tyr Ser Lys Met Asn Asn Pro Ala Ile Lys
35 40 45

25 Arg Ile Gly Asn His Ile Thr Lys Ser Pro Glu Asp Lys Arg Glu Tyr
50 55 60
Arg Gly Leu Glu Leu Ala Asn Gly Ile Lys Val Leu Leu Met Ser Asp
65 70 75 80

30 Pro Thr Thr Asp Lys Ser Ser Ala Ala Leu Asp Val His Ile Gly Ser
85 90 95

35 Leu Ser Asp Pro Pro Asn Ile Ala Gly Leu Ser His Phe Cys Glu His
100 105 110

40 Met Leu Phe Leu Gly Thr Lys Lys Tyr Pro Lys Glu Asn Glu Tyr Ser
115 120 125

45 Gln Phe Leu Ser Glu His Ala Gly Ser Ser Asn Ala Phe Thr Ser Gly
130 135 140

50 Glu His Thr Asn Tyr Tyr Phe Asp Val Ser His Glu His Leu Glu Gly
145 150 155 160

55 Ala Leu Asp Arg Phe Ala Gln Phe Phe Leu Cys Pro Leu Phe Asp Glu
165 170 175

Ser Cys Lys Asp Arg Glu Val Asn Ala Val Asp Ser Glu His Glu Lys
180 185 190

Asn Val Met Asn Asp Ala Trp Arg Leu Phe Gln Leu Glu Lys Ala Thr
195 200 205

Gly Asn Pro Lys His Pro Phe Ser Lys Phe Gly Thr Gly Asn Lys Tyr
210 215 220

5

Thr Leu Glu Thr Arg Pro Asn Gln Glu Gly Ile Asp Val Arg Gln Glu
225 230 235 240

10

Leu Leu Lys Phe His Ser Ala Tyr Tyr Ser Ser Asn Leu Met Ala Val
245 250 255

15

Cys Val Leu Gly Arg Glu Ser Leu Asp Asp Leu Thr Asn Leu Val Val
260 265 270

20

Lys Leu Phe Ser Glu Val Glu Asn Lys Asn Val Pro Leu Pro Glu Phe
275 280 285

25

Pro Glu His Pro Phe Gln Glu Glu His Leu Lys Gln Leu Tyr Lys Ile
290 295 300

Val Pro Ile Lys Asp Ile Arg Asn Leu Tyr Val Thr Phe Pro Ile Pro
305 310 315 320

30

Asp Leu Gln Lys Tyr Tyr Lys Ser Asn Pro Gly His Tyr Leu Gly His
325 330 335

35

Leu Ile Gly His Glu Gly Pro Gly Ser Leu Leu Ser Glu Leu Lys Ser
340 345 350

40

Lys Gly Trp Val Asn Thr Leu Val Gly Gly Gln Lys Glu Gly Ala Arg
355 360 365

45

Gly Phe Met Phe Phe Ile Ile Asn Val Asp Leu Thr Glu Glu Gly Leu
370 375 380

50

Leu His Val Glu Asp Ile Ile Leu His Met Phe Gln Tyr Ile Gln Lys
385 390 395 400

55

Leu Arg Ala Glu Gly Pro Gln Glu Trp Val Phe Gln Glu Cys Lys Asp
405 410 415

Leu Asn Ala Val Ala Phe Arg Phe Lys Asp Lys Glu Arg Pro Arg Gly
420 425 430

Tyr Thr Ser Lys Ile Ala Gly Ile Leu His Tyr Tyr Pro Leu Glu Glu
435 440 445

41/67

Val Leu Thr Ala Glu Tyr Leu Leu Glu Glu Phe Arg Pro Asp Leu Ile
450 455 460

5 Glu Met Val Leu Asp Lys Leu Arg Pro Glu Asn Val Arg Val Ala Ile
465 470 475 480

10 Val Ser Lys Ser Phe Glu Gly Lys Thr Asp Arg Thr Glu Glu Trp Tyr
485 490 495

15 Gly Thr Gln Tyr Lys Gln Glu Ala Ile Pro Asp Glu Val Ile Lys Lys
500 505 510

20 Trp Gln Asn Ala Asp Leu Asn Gly Lys Phe Lys Leu Pro Thr Lys Asn
515 520 525

25 Glu Phe Ile Pro Thr Asn Phe Glu Ile Leu Pro Leu Glu Lys Glu Ala
530 535 540
Thr Pro Tyr Pro Ala Leu Ile Lys Asp Thr Val Met Ser Lys Leu Trp
545 550 555 560

30 Phe Lys Gln Asp Asp Lys Lys Lys Pro Lys Ala Cys Leu Asn Phe
565 570 575

35 Glu Phe Phe Ser Pro Phe Ala Tyr Val Asp Pro Leu His Cys Asn Met
580 585 590

40 Ala Tyr Leu Tyr Leu Glu Leu Leu Lys Asp Ser Leu Asn Glu Tyr Ala
595 600 605

45 Tyr Ala Ala Glu Leu Ala Gly Leu Ser Tyr Asp Leu Gln Asn Thr Ile
610 615 620

50 Tyr Gly Met Tyr Leu Ser Val Lys Gly Tyr Asn Asp Lys Gln Pro Ile
625 630 635 640

Leu Leu Lys Lys Ile Ile Glu Lys Met Ala Thr Phe Glu Ile Asp Glu
645 650 655

55 Lys Arg Phe Glu Ile Ile Lys Glu Ala Tyr Met Arg Ser Leu Asn Asn
660 665 670

Phe Arg Ala Glu Gln Pro His Gln His Ala Met Tyr Tyr Leu Arg Leu
675 680 685

42/67

Leu Met Thr Glu Val Ala Trp Thr Lys Asp Glu Leu Lys Glu Ala Leu
690 695 700

5 Asp Asp Val Thr Leu Pro Arg Leu Lys Ala Phe Ile Pro Gln Leu Leu
705 710 715 720

10 Ser Arg Leu His Ile Glu Ala Leu Leu His Gly Asn Ile Thr Lys Gln
725 730 735

15 Ala Ala Leu Gly Ile Met Gln Met Val Glu Asp Thr Leu Ile Glu His
740 745 750

Ala His Thr Lys Pro Leu Leu Pro Ser Gln Leu Val Arg Tyr Arg Glu
755 760 765

20 Val Gln Leu Pro Asp Arg Gly Trp Phe Val Tyr Gln Gln Arg Asn Glu
770 775 780

Val His Asn Asn Cys Gly Ile Glu Ile Tyr Tyr Gln Thr Asp Met Gln
785 790 795 800

25 Ser Thr Ser Glu Asn Met Phe Leu Glu Leu Phe Cys Gln Ile Ile Ser
805 810 815

30 Glu Pro Cys Phe Asn Thr Leu Arg Thr Lys Glu Gln Leu Gly Tyr Ile
820 825 830

35 Val Phe Ser Gly Pro Arg Arg Ala Asn Gly Ile Gln Ser Leu Arg Phe
835 840 845

40 Ile Ile Gln Ser Glu Lys Pro Pro His Tyr Leu Glu Ser Arg Val Glu
850 855 860

45 Ala Phe Leu Ile Thr Met Glu Lys Ser Ile Glu Asp Met Thr Glu Glu
865 870 875 880

Ala Phe Gln Lys His Ile Gln Ala Leu Ala Ile Arg Arg Leu Asp Lys
885 890 895

50 Pro Lys Lys Leu Ser Ala Glu Cys Ala Lys Tyr Trp Gly Glu Ile Ile
900 905 910

55 Ser Gln Gln Tyr Asn Phe Asp Arg Asp Asn Thr Glu Val Ala Tyr Leu
915 920 925

Lys Thr Leu Thr Lys Glu Asp Ile Ile Lys Phe Tyr Lys Glu Met Leu

930

935

940

Ala Val Asp Ala Pro Arg Arg His Lys Val Ser Val His Val Leu Ala
5 945 950 955 960

Arg Glu Met Asp Ser Cys Pro Val Val Gly Glu Phe Pro Cys Gln Asn
965 970 975

10

Asp Ile Asn Leu Ser Gln Ala Pro Ala Leu Pro Gln Pro Glu Val Ile
980 985 990

15

Gln Asn Met Thr Glu Phe Lys Arg Gly Leu Pro Leu Phe Pro Leu Val
995 1000 1005

20 Lys Pro His Ile Asn Phe Met Ala Ala Lys Leu
1010 1015

<210> 12

<211> 1265

<212> PRT

25 <213> Arabidopsis thaliana

<400> 12

30 Met Ala Ser Ser Ser Ser Ile Phe Thr Gly Val Lys Phe Ser Pro
1 5 10 15

Ile Leu Ala Pro Phe Asn Ser Gly Asp Ser Arg Arg Ser Arg Tyr Leu
20 25 30

35 Lys Asp Ser Arg Asn Lys Val Arg Phe Asn Pro Ser Ser Pro Arg Leu
35 40 45

40 Thr Pro His Arg Val Arg Val Glu Ala Pro Ser Leu Ile Pro Tyr Asn
50 55 60

45 Gly Leu Trp Ala Ala Gln Pro Asn Ser His Lys Gly Arg Leu Lys Arg
65 70 75 80

50 Asn Ile Val Ser Gly Lys Glu Ala Thr Gly Ile Ser Leu Ser Gln Gly
85 90 95

55 Arg Asn Phe Cys Leu Thr Cys Lys Arg Asn Gln Ala Gly Ile Arg Arg
100 105 110

Ala Leu Pro Ser Ala Phe Val Asp Arg Thr Ala Phe Ser Leu Ser Arg
115 120 125

130 Ser Ser Leu Thr Ser Ser Leu Arg Lys His Ser Gln Ile Val Asn Ala
135 140

5 145 Thr Leu Gly Pro Asp Glu Pro His Ala Ala Gly Thr Ala Trp Pro Asp
150 155 160

10 165 Gly Ile Val Ala Glu Arg Gln Asp Leu Asp Leu Leu Pro Pro Glu Ile
170 175

15 180 Asp Ser Ala Glu Leu Glu Ala Phe Leu Gly Cys Glu Leu Pro Ser His
185 190

20 195 Pro Lys Leu His Arg Gly Gln Leu Lys Asn Gly Leu Arg Tyr Leu Ile
200 205

210 215 220 Leu Pro Asn Lys Val Pro Pro Asn Arg Phe Glu Ala His Met Glu Val

25 225 His Val Gly Ser Ile Asp Glu Glu Glu Asp Glu Gln Gly Ile Ala His
230 235 240

30 245 Met Ile Glu His Val Ala Phe Leu Gly Ser Lys Lys Arg Glu Lys Leu
250 255

35 260 265 270 Leu Gly Thr Gly Ala Arg Ser Asn Ala Tyr Thr Asp Phe His His Thr

275 280 285 Val Phe His Ile His Ser Pro Thr His Thr Lys Asp Ser Glu Asp Asp

40 290 295 300 Leu Phe Pro Ser Val Leu Asp Ala Leu Asn Glu Ile Ala Phe His Pro

45 305 310 315 320 Lys Phe Leu Ser Ser Arg Val Glu Lys Glu Arg Arg Ala Ile Leu Ser

50 325 330 335 Glu Leu Gln Met Met Asn Thr Ile Glu Tyr Arg Val Asp Cys Gln Leu

55 340 345 350 Leu Gln His Leu His Ser Glu Asn Lys Leu Gly Arg Arg Phe Pro Ile

355 360 365 Gly Leu Glu Glu Gln Ile Lys Lys Trp Asp Val Asp Lys Ile Arg Lys

45/67

Phe His Glu Arg Trp Tyr Phe Pro Ala Asn Ala Thr Leu Tyr Ile Val
370 375 380

5
Gly Asp Ile Asp Asn Ile Pro Arg Ile Val His Asn Ile Glu Ala Val
385 390 395 400

10 Phe Gly Lys Asn Gly Leu Asp Asn Glu Ser Thr Pro Ser Ser Pro Ser
405 410 415

15 Pro Gly Ala Phe Gly Ala Met Ala Asn Phe Leu Val Pro Lys Leu Pro
420 425 430

20 Ala Gly Leu Gly Gly Thr Phe Ser Asn Glu Lys Thr Asn Thr Ala Asp
435 440 445
Gln Ser Lys Met Ile Lys Arg Glu Arg His Ala Ile Arg Pro Pro Val
450 455 460

25 Glu His Asn Trp Ser Leu Pro Gly Thr Ser Val Asp Leu Lys Pro Pro
465 470 475 480

30 Gln Ile Phe Lys His Glu Leu Leu Gln Asn Phe Ala Ile Asn Met Phe
485 490 495

35 Cys Lys Ile Pro Val Ser Lys Val Gln Thr Phe Gly Asp Leu Arg Asn
500 505 510

40 Thr Arg Tyr Lys Ser Ser Asn Pro Pro Phe Thr Ser Val Glu Leu Asp
530 535 540

45 His Ser Asp Ser Gly Arg Glu Gly Cys Thr Val Thr Thr Leu Thr Val
545 550 555 560

50 Thr Ala Glu Pro Gln Asn Trp Gln Asn Ala Val Lys Val Ala Val Gln
565 570 575

55 Glu Val Arg Arg Leu Lys Glu Phe Gly Val Thr Arg Gly Glu Leu Thr
580 585 590

Arg Tyr Met Asp Ala Leu Leu Lys Asp Ser Glu His Leu Ala Ala Met
595 600 605

46/67

Ile Asp Asn Val Ser Ser Val Asp Asn Leu Asp Phe Ile Met Glu Ser
610 615 620

5 Asp Ala Leu Ser His Thr Val Met Asp Gln Thr Gln Gly His Glu Thr
625 630 635 640

10 Leu Val Ala Val Ala Gly Thr Val Thr Leu Glu Glu Val Asn Thr Val
645 650 655

15 Gly Ala Lys Val Leu Glu Phe Ile Ser Asp Phe Gly Arg Pro Thr Ala
660 665 670

20 Leu Leu Pro Ala Ala Ile Val Ala Cys Val Pro Thr Lys Val His Val
675 680 685

Asp Gly Val Gly Glu Ser Asp Phe Asn Ile Ser Pro Asp Glu Ile Ile
690 695 700

25 Glu Ser Val Lys Ser Gly Leu Leu Ala Pro Ile Glu Ala Glu Pro Glu
705 710 715 720

30 Leu Glu Val Pro Lys Glu Leu Ile Ser Gln Ser Gln Leu Lys Glu Leu
725 730 735

35 Thr Leu Gln Arg Asn Pro Cys Phe Val Pro Ile Pro Gly Ser Gly Leu
740 745 750

40 Asn Gly Ile Ala Val Asn Tyr Lys Lys Ser Thr Thr Glu Ser Arg Ala
770 775 780

45 Gly Val Met Arg Leu Ile Val Gly Gly Arg Ala Ala Glu Thr Ser
785 790 795 800

50 Asp Ser Lys Gly Ala Val Val Val Gly Val Arg Thr Leu Ser Glu Gly
805 810 815

55 Asn His Leu Ile Asn Cys Ser Leu Glu Ser Thr Glu Glu Phe Ile Ala
835 840 845

Met Glu Phe Arg Phe Thr Leu Arg Asp Asn Gly Met Gln Ala Ala Phe

850

855

860

5 Gln Leu Leu His Met Val Leu Glu Arg Ser Val Trp Leu Glu Asp Ala
865 870 875 880

10 Phe Asp Arg Ala Arg Gln Leu Tyr Leu Ser Tyr Phe Arg Ser Ile Pro
885 890 895

Lys Ser Leu Glu Arg Ala Thr Ala His Lys Leu Met Ile Ala Met Leu
900 905 910

15 Asn Gly Asp Glu Arg Phe Val Glu Pro Thr Pro Lys Ser Leu Gln Ser
915 920 925
Leu Asn Leu Glu Ser Val Lys Asp Ala Val Met Ser His Phe Val Gly
930 935 940

20 Asp Asn Met Glu Val Ser Ile Val Gly Asp Phe Ser Glu Glu Glu Ile
945 950 955 960

25 Glu Arg Cys Ile Leu Asp Tyr Leu Gly Thr Val Lys Ala Ser His Asp
965 970 975

30 Ser Ala Lys Pro Pro Gly Ser Glu Pro Ile Leu Phe Arg Gln Pro Thr
980 985 990

35 Ala Gly Leu Gln Phe Gln Gln Val Phe Leu Lys Asp Thr Asp Glu Arg
995 1000 1005

40 Ala Cys Ala Tyr Ile Ala Gly Pro Ala Pro Asn Arg Trp Gly Phe
1010 1015 1020

45 Thr Val Asp Gly Asp Asp Leu Phe Gln Ser Val Ser Lys Leu Pro
1025 1030 1035

50 Val Ala His Asp Gly Leu Leu Lys Ser Glu Glu Gln Leu Leu Glu
1040 1045 1050

55 Gly Gly Asp Arg Glu Leu Gln Lys Lys Leu Arg Ala His Pro Leu
1055 1060 1065

Phe Phe Gly Val Thr Met Gly Leu Leu Ala Glu Ile Ile Asn Ser
1070 1075 1080

Arg Leu Phe Thr Thr Val Arg Asp Ser Leu Gly Leu Thr Tyr Asp
1085 1090 1095

Val Ser Phe Glu Leu Asn Leu Phe Asp Arg Leu Lys Leu Gly Trp
1100 1105 1110
5

Tyr Val Ile Ser Val Thr Ser Thr Pro Gly Lys Val Tyr Lys Ala
1115 1120 1125

10 Val Asp Ala Cys Lys Asn Val Leu Arg Gly Leu His Ser Asn Gln
1130 1135 1140

15 Ile Ala Pro Arg Glu Leu Asp Arg Ala Lys Arg Thr Leu Leu Met
1145 1150 1155
Arg His Glu Ala Glu Leu Lys Ser Asn Ala Tyr Trp Leu Asn Leu
1160 1165 1170

20 Leu Ala His Leu Gln Ala Ser Ser Val Gln Arg Lys Glu Leu Ser
1175 1180 1185

25 Cys Ile Lys Glu Leu Val Ser Leu Tyr Glu Ala Ala Ser Ile Glu
1190 1195 1200

30 Asp Ile Tyr Leu Ala Tyr Asn Gln Leu Arg Val Asp Glu Asp Ser
1205 1210 1215

Leu Tyr Ser Cys Ile Gly Ile Ala Gly Ala Gln Ala Gly Glu Glu
1220 1225 1230
35

Ile Thr Val Leu Ser Glu Glu Glu Glu Pro Glu Asp Val Phe Ser
1235 1240 1245

40 Gly Val Val Pro Val Gly Arg Gly Ser Ser Met Thr Thr Arg Pro
1250 1255 1260

45 Thr Thr
1265

50 <210> 13
<211> 534
<212> PRT
<213> Homo sapiens

55 <400> 13

Met Arg Pro Asp Asp Lys Tyr His Glu Lys Gln Ala Gln Val Glu Ala
1 5 10 15

49/67

Thr Lys Leu Lys Gln Lys Val Glu Ala Leu Ser Pro Gly Asp Arg Gln
20 25 30

5 Gln Ile Tyr Glu Lys Gly Leu Glu Leu Arg Ser Gln Gln Ser Lys Pro
35 40 45

10 Gln Asp Ala Ser Cys Leu Pro Ala Leu Lys Val Ser Asp Ile Glu Pro
50 55 60

15 Thr Ile Pro Val Thr Glu Leu Asp Val Val Leu Thr Ala Gly Asp Ile
65 70 75 80

Pro Val Gln Tyr Cys Ala Gln Pro Thr Asn Gly Met Val Tyr Phe Arg
85 90 95

20 Ala Phe Ser Ser Leu Asn Thr Leu Pro Glu Glu Leu Arg Pro Tyr Val
100 105 110

25 Pro Leu Phe Cys Ser Val Leu Thr Lys Leu Gly Cys Gly Leu Leu Asp
115 120 125

30 Tyr Arg Glu Gln Ala Gln Ile Glu Leu Lys Thr Gly Gly Met Ser
130 135 140

Ala Ser Pro His Val Leu Pro Asp Asp Ser His Met Asp Thr Tyr Glu
145 150 155 160

35 Gln Gly Val Leu Phe Ser Ser Leu Cys Leu Asp Arg Asn Leu Pro Asp
165 170 175

40 Met Met Gln Leu Trp Ser Glu Ile Phe Asn Asn Pro Cys Phe Glu Glu
180 185 190

45 Glu Glu His Phe Lys Val Leu Val Lys Met Thr Ala Gln Glu Leu Ala
195 200 205

50 Asn Gly Ile Pro Asp Ser Gly His Leu Tyr Ala Ser Ile Arg Ala Gly
210 215 220

Arg Thr Leu Thr Pro Ala Gly Asp Leu Gln Glu Thr Phe Ser Gly Met
225 230 235 240

55 Asp Gln Val Arg Leu Met Lys Arg Ile Ala Glu Met Thr Asp Ile Lys
245 250 255

50/67

Pro Ile Leu Arg Lys Leu Pro Arg Ile Lys Lys His Leu Leu Asn Gly
260 265 270

5 Asp Asn Met Arg Cys Ser Val Asn Ala Thr Pro Gln Gln Met Pro Gln
275 280 285

10 Thr Glu Lys Ala Val Glu Asp Phe Leu Arg Ser Ile Gly Arg Ser Lys
290 295 300

15 Lys Glu Arg Arg Pro Val Arg Pro His Thr Val Glu Lys Pro Val Pro
305 310 315 320

15 Ser Ser Ser Gly Gly Asp Ala His Val Pro His Gly Ser Gln Val Ile
325 330 335

20 Arg Lys Leu Val Met Glu Pro Thr Phe Lys Pro Trp Gln Met Lys Thr
340 345 350

25 His Phe Leu Met Pro Phe Pro Val Asn Tyr Val Gly Glu Cys Ile Arg
355 360 365

30 Thr Val Pro Tyr Thr Asp Pro Asp His Ala Ser Leu Lys Ile Leu Ala
370 375 380

35 Arg Leu Met Thr Ala Lys Phe Leu His Thr Glu Ile Arg Glu Lys Gly
385 390 395 400

35 Gly Ala Tyr Gly Gly Ala Lys Leu Ser His Asn Gly Ile Phe Thr
405 410 415

40 Leu Tyr Ser Tyr Arg Asp Pro Asn Thr Ile Glu Thr Leu Gln Ser Phe
420 425 430

45 Gly Lys Ala Val Asp Trp Ala Lys Ser Gly Lys Phe Thr Gln Gln Asp
435 440 445

50 Ile Asp Glu Ala Lys Leu Ser Val Phe Ser Thr Val Asp Ala Pro Val
450 455 460

55 Ala Pro Ser Asp Lys Gly Met Asp His Phe Leu Tyr Gly Leu Ser Asp
465 470 475 480

55 Glu Met Lys Gln Ala His Arg Glu Gln Leu Phe Ala Val Ser His Asp
485 490 495

Lys Leu Leu Ala Val Ser Asp Arg Tyr Leu Gly Thr Gly Lys Ser Thr

51/67

500

505

510

5 His Gly Leu Ala Ile Leu Gly Pro Glu Asn Pro Lys Ile Ala Lys Asp
515 520 525

10 Pro Ser Trp Ile Ile Arg
530

10

15 <210> 14
<211> 409
<212> PRT
<213> *Bacillus subtilis*
<400> 14

20 Met Ile Lys Arg Tyr Thr Cys Pro Asn Gly Val Arg Ile Val Leu Glu
1 5 10 15

25 Asn Asn Pro Thr Val Arg Ser Val Ala Ile Gly Val Trp Ile Gly Thr
20 25 30

30 Gly Ser Arg His Glu Thr Pro Glu Ile Asn Gly Ile Ser His Phe Leu
35 40 45

35 Glu His Met Phe Phe Lys Gly Thr Ser Thr Lys Ser Ala Arg Glu Ile
50 55 60

40 Ala Glu Ser Phe Asp Arg Ile Gly Gly Gln Val Asn Ala Phe Thr Ser
65 70 75 80

45 Tyr Ala Leu Asp Val Leu Ala Asp Met Phe Phe His Ser Thr Phe Asp
100 105 110

50 Glu Asn Glu Leu Lys Lys Glu Lys Asn Val Val Tyr Glu Glu Ile Lys
115 120 125

55 Met Tyr Glu Asp Ala Pro Asp Asp Ile Val His Asp Leu Leu Ser Lys
130 135 140

55 Ala Thr Tyr Gly Asn His Ser Leu Gly Tyr Pro Ile Leu Gly Thr Glu
145 150 155 160

52/67

Glu Thr Leu Ala Ser Phe Asn Gly Asp Ser Leu Arg Gln Tyr Met His
165 170 175

5 Asp Tyr Tyr Thr Pro Asp Arg Val Val Ile Ser Val Ala Gly Asn Ile
180 185 190

10 Ser Asp Ser Phe Ile Lys Asp Val Glu Lys Trp Phe Gly Ser Tyr Glu
195 200 205

Ala Lys Gly Lys Ala Thr Gly Leu Glu Lys Pro Glu Phe His Thr Glu.
210 215 220

15 Lys Leu Thr Arg Lys Lys Glu Thr Glu Gln Ala His Leu Cys Leu Gly
225 230 235 240

20 Phe Lys Gly Leu Glu Val Gly His Glu Arg Ile Tyr Asp Leu Ile Val
245 250 255

25 Leu Asn Asn Val Leu Gly Gly Ser Met Ser Ser Arg Leu Phe Gln Asp
260 265 270

30 Val Arg Glu Asp Lys Gly Leu Ala Tyr Ser Val Tyr Ser Tyr His Ser
275 280 285

35 Ser Tyr Glu Asp Ser Gly Met Leu Thr Ile Tyr Gly Gly Thr Gly Ala
290 295 300

40 Asn Gln Leu Gln Gln Leu Ser Glu Thr Ile Gln Glu Thr Leu Ala Thr
305 310 315 320

45 Leu Lys Arg Asp Gly Ile Thr Ser Lys Glu Leu Glu Asn Ser Lys Glu
325 330 335

50 Gln Met Lys Gly Ser Leu Met Leu Ser Leu Glu Ser Thr Asn Ser Lys
340 345 350

55 Met Ser Arg Asn Gly Lys Asn Glu Leu Leu Leu Gly Lys His Lys Thr
355 360 365

Leu Asp Glu Ile Ile Asn Glu Leu Asn Ala Val Asn Leu Glu Arg Val
370 375 380

Asn Gly Leu Ala Arg Gln Leu Phe Thr Glu Asp Tyr Ala Leu Ala Leu
385 390 395 400

53/67

Ile Ser Pro Ser Gly Asn Met Pro Ser
405

5 <210> 15
<211> 438
<212> PRT
<213> *Mycobacterium tuberculosis*

10 <400> 15
Met Pro Arg Arg Ser Pro Ala Asp Pro Ala Ala Ala Leu Ala Pro Arg
1 5 10 15

15 Arg Thr Thr Leu Pro Gly Gly Leu Arg Val Val Thr Glu Phe Leu Pro
20 25 30

20 Ala Val His Ser Ala Ser Val Gly Val Trp Val Gly Val Gly Ser Arg
35 40 45

25 Asp Glu Gly Ala Thr Val Ala Gly Ala Ala His Phe Leu Glu His Leu
50 55 60

30 Leu Phe Lys Ser Thr Pro Thr Arg Ser Ala Val Asp Ile Ala Gln Ala
65 70 75 80

35 Met Asp Ala Val Gly Gly Glu Leu Asn Ala Phe Thr Ala Lys Glu His
85 90 95

40 Thr Cys Tyr Tyr Ala His Val Leu Gly Ser Asp Leu Pro Leu Ala Val
100 105 110

45 Asp Leu Val Ala Asp Val Val Leu Asn Gly Arg Cys Ala Ala Asp Asp
115 120 125

50 Val Glu Val Glu Arg Asp Val Val Leu Glu Glu Ile Ala Met Arg Asp
130 135 140

55 Asp Asp Pro Glu Asp Ala Leu Ala Asp Met Phe Leu Ala Ala Leu Phe
145 150 155 160

60 Gly Asp His Pro Val Gly Arg Pro Val Ile Gly Ser Ala Gln Ser Val
165 170 175

65 Ser Val Met Thr Arg Ala Gln Leu Gln Ser Phe His Leu Arg Arg Tyr
180 185 190

70 Thr Pro Glu Arg Met Val Val Ala Ala Ala Gly Asn Val Asp His Asp

54/67

195 200 205

5 Gly Leu Val Ala Leu Val Arg Glu His Phe Gly Ser Arg Leu Val Arg
210 215 22010 Gly Arg Arg Pro Val Ala Pro Arg Lys Gly Thr Gly Arg Val Asn Gly
225 230 235 240
10 Ser Pro Arg Leu Thr Leu Val Ser Arg Asp Ala Glu Gln Thr His Val
245 250 25515 Ser Leu Gly Ile Arg Thr Pro Gly Arg Gly Trp Glu His Arg Trp Ala
260 265 27020 Leu Ser Val Leu His Thr Ala Leu Gly Gly Leu Ser Ser Arg Leu
275 280 28525 Phe Gln Glu Val Arg Glu Thr Arg Gly Leu Ala Tyr Ser Val Tyr Ser
290 295 30025 Ala Leu Asp Leu Phe Ala Asp Ser Gly Ala Leu Ser Val Tyr Ala Ala
305 310 315 32030 Cys Leu Pro Glu Arg Phe Ala Asp Val Met Arg Val Thr Ala Asp Val
325 330 33535 Leu Glu Ser Val Ala Arg Asp Gly Ile Thr Glu Ala Glu Cys Gly Ile
340 345 35040 Ala Lys Gly Ser Leu Arg Gly Gly Leu Val Leu Gly Leu Glu Asp Ser
355 360 36545 Ser Ser Arg Met Ser Arg Leu Gly Arg Ser Glu Leu Asn Tyr Gly Lys
370 375 38045 His Arg Ser Ile Glu His Thr Leu Arg Gln Ile Glu Gln Val Thr Val
385 390 395 40050 Glu Glu Val Asn Ala Val Ala Arg His Leu Leu Ser Arg Arg Tyr Gly
405 410 41555 Ala Ala Val Leu Gly Pro His Gly Ser Lys Arg Ser Leu Pro Gln Gln
420 425 430Leu Arg Ala Met Val Gly
435

5 <210> 16
<211> 34
<212> DNA
<213> Artificial Sequence

10 <220>
<223> Oligonucleotide

15 <400> 16
aatagaagct tgtcgactga tctatccaaa actg 34

20 <210> 17
<211> 66
<212> DNA
<213> Artificial Sequence

25 <220>
<223> Oligonucleotide

30 <400> 17
aaaagagctc ggccagatct tctagaggat ccaagaattc tgtttatat ttgttgaaa 60

35 <210> 18
<211> 37
<212> DNA
<213> Artificial Sequence

40 <220>
<223> Oligonucleotide

45 <400> 18
tttgaattc caagatctcc catgtctcta ctggtgg 37

50 <210> 19
<211> 41
<212> DNA
<213> Artificial Sequence

55 <220>
<223> Oligonucleotide

60 <400> 19
ccccgagctc gtcgaccctt ctcgaaagct ttaacgaacg c 41

65 <210> 20
<211> 43
<212> DNA
<213> Artificial Sequence

<220>
<223> Oligonucleotide

5 <400> 20
ttttgaattc aaagaatgag atttccttca atttttactg cag 43

<210> 21
<211> 37
10 <212> DNA
<213> Artificial Sequence

<220>
<223> Oligonucleotide

15 <400> 21
tttttctaga ctaggagggg tactcatact cctcggc 37

<210> 22
20 <211> 33
<212> DNA
<213> Artificial Sequence

<220>
25 <223> Oligonucleotide

<400> 22
cgaatgtcca tcgttgcgaa cctgcagaac ctg 33

30 <210> 23
<211> 33
<212> DNA
<213> Artificial Sequence

35 <220>
<223> Oligonucleotide

<400> 23
caggttctgc aggttcctaa cgatggacat tcg 33

40 <210> 24
<211> 33
<212> DNA
<213> Artificial Sequence

45 <220>
<223> Oligonucleotide

<400> 24
50 cgaatgtcca tcgttaggaa cctgcagaac ctg 33

<210> 25
<211> 33
55 <212> DNA
<213> Artificial Sequence

<220>

<223> Oligonucleotide

<400> 25
caggttctgc aggttcctaa cgatggacat tcg 33
5 <210> 26
<211> 18
<212> DNA
<213> Artificial Sequence

10 <220>
<223> Oligonucleotide

<400> 26
tcgcagagaa cggatggc 18
15

<210> 27
<211> 36
<212> DNA
20 <213> Artificial Sequence

<220>
<223> Oligonucleotide

25 <400> 27
ttttgggcccc ttcatggtga tacggtatct cttggc 36

<210> 28
30 <211> 37
<212> DNA
<213> Artificial Sequence

<220>
35 <223> Oligonucleotide

<400> 28
tttctcgag aaggtggaac atactgccct gggatgg 37

40 <210> 29
<211> 38
<212> DNA
<213> Artificial Sequence

45 <220>
<223> Oligonucleotide

<400> 29
50 tttgagctc gtttaggaaa cgtccttggc ggagatgc 38

<210> 30
<211> 40
55 <212> DNA
<213> Artificial Sequence

<220>
<223> Oligonucleotide

<400> 30
tttttctaga cactgcgaat ccatggata aaccaaaaacc 40
<210> 31
5 <211> 24
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15 <210> 32
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25 tacaaatgtt cttctgccat ttctgg 26

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35 <400> 33
ggttcatatgtt cgccggagct cctcgacagc ag 32

40 <210> 34
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45 <220>
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50 ggttcctagg atccgcaagt ttgattccat tgcggtg 37

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gagagtgcac 70

5 <210> 36
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<400> 36
15 aggttattata actattttc tgtatttttt atatattttt atttgccaag ctgtgcggta 60
tttcacacccg 70

20 <210> 37
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25 <220>
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<400> 37
30 ctttggtaa agagtacctt ggc 23

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40 <400> 38
tactacgaaa agcgtgtgcg agg 23

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55 tgagagtgcac 71

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tttcacacccg 70

15 <210> 41
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25 cgaggaggct ctatgataaa gg 22

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30 <213> Artificial Sequence

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35 <400> 42
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45 <400> 43
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1 5 10 15

50 Ser Gln Arg Thr Asp Gly Glu Ser Arg Ala His Leu Gly Ala Leu Leu
20 25 30

55 Ala Arg Tyr Ile Gln Gln Ala Arg Lys Ala Pro Ser Gly Arg Met Ser
35 40 45

Ile Val Lys Asn Leu Gln Asn Leu Asp Pro Ser His Arg Ile Ser Asp
50 55 60

Arg Asp Tyr Met Gly Trp Met Asp Phe Gly Arg Arg Ser Ala Glu Glu
65 70 75 80

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Tyr Glu Tyr Pro Ser
85

10

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<212> PRT
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Gln Leu Arg Val Ser Gln Arg Thr Asp Gly Glu Ser Arg Ala His Leu
20 1 5 10 15

Gly Ala Leu Leu Ala Arg
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<211> 19
<212> PRT
30 <213> Homo sapiens

<400> 45

35 Val Ser Gln Arg Thr Asp Gly Glu Ser Arg Ala His Leu Gly Ala Leu
1 5 10 15

Leu Ala Arg
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<400> 46

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Tyr Ile Gln Gln Ala Arg Lys Ala Pro Ser Gly Arg Met Ser Ile Val
1 5 10 15

55 Lys Asn Leu Gln Asn Leu Asp Pro Ser His Arg Ile Ser Asp Arg Asp
20 25 30
Tyr Met Gly Trp Met Asp Phe Gly Arg Arg Ser Ala Glu Glu Tyr Glu
35 40 45

Tyr Pro Ser
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5 <210> 47
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<212> PRT
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Tyr Ile Gln Gln Ala Arg Lys Ala Pro Ser Gly Arg Met Ser Ile Val
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Lys

20 <210> 48
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<212> PRT
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25 <400> 48

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30 <210> 49
<211> 13
<212> PRT
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Asn Leu Gln Asn Leu Asp Pro Ser His Arg Ile Ser Asp
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<210> 50
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45 <213> Homo sapiens

<400> 50

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55 Met Gly Trp Met Asp Phe Gly
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<210> 51
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5 1 5 10 15

Met Gly Trp Met Asp Phe Gly Arg Arg Ser Ala Glu Glu Tyr Glu Tyr
10 20 25 30

Pro Ser

15

<210> 53
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Lys Arg Glu Ala Glu Ala Ser Gly Leu Gln Arg Ala
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<400> 54

Arg Met Ser Ile Val Lys Asn Leu Gln
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40

<210> 55
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Asp Arg Asp Tyr Met Gly Trp Met Asp Phe Gly Arg Arg
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<400> 57
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25 <400> 58
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30 <210> 59
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35 <223> Oligonucleotide BNP3'XbaI

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agagtgcac 69

<210> 63
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tttacacccg 70

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35 <220>
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<400> 64
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<400> 65
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<400> 11
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<221> VARIANT
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<223> Xaa = any amino acid or absent
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Xaa
55 20 25 30
Xaa Xaa Xaa Asn Ala Xaa Thr Xaa Xaa Xaa Xaa Thr
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<210> 68
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Tyr Pro Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Leu Xaa Xaa Xaa Xaa Xaa
20 25 30
35 Xaa Xaa Xaa Asn Ala Xaa Thr Xaa Xaa Xaa Xaa Thr
35 40